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**United States Patent** [19]

Oshima et al.

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[54] **MARK FORMING APPARATUS, METHOD OF FORMING LASER MARK ON OPTICAL DISK, REPRODUCING APPARATUS, OPTICAL DISK AND METHOD OF PRODUCING OPTICAL DISK**

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[51] Int. Cl.<sup>6</sup> ..... **H04K 1/00**

[52] U.S. Cl. .... **380/4: 369/272; 235/494**

[58] Field of Search ..... **380/4: 369/272, 369/273, 286, 292, 52; 235/494**

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[57] **ABSTRACT**

An object of the present invention is to provide a marking forming apparatus, a method of forming a laser marking on an optical disk, a reproduction apparatus, an optical disk, and a method of manufacturing an optical disk, capable of providing a greatly improved copy prevention capability as compared to prior known construction. To achieve this object, in the optical disk of the invention, for example, a marking is formed by a laser on a reflective film of a disk holding data written thereon and at least position information of the marking or information concerning the position information is written on the disk in an encrypted form or with a digital signature appended thereto.

**27 Claims, 43 Drawing Sheets**

